

# **Invasive Species Early Detection Monitoring Protocol for Klamath Network Parks**

## **Standard Operating Procedure (SOP) #2: Field Work Preparation**

**Version 1.00 (February 2010)**

### **Revision History Log:**

Previous Version	Revision Date	Author	Changes Made	Reason for Change	New Version

This SOP explains procedures that will be completed prior to implementing the field season, including reviewing the budget, hiring and scheduling the field crew, and preparing site description forms and maps, as well as preparing data forms, obtaining GIS layers, meeting park requirements, planning the training, and setting up equipment and the database.

### **Reviewing the Budget**

It is the Network Coordinator's responsibility to provide adequate funding to conduct this protocol. Funding for this project should be clearly stated in the Annual Administrative Work Plan. The Crew Lead will work with the Network Coordinator prior to each field season to review the budget for this project's work plan and ensure that it meets salary, equipment, mileage, and miscellaneous field expenses.

### **Hiring the Crew Lead**

It is the Project Lead's responsibility to hire the Crew Lead. Recruitment for the Crew Lead should begin in late November or early December of the year preceding a field season. Hiring should be completed no later than February. Qualities to seek in potential Crew Leads include:

1. Proficiency at identifying both native and non-native plants. A completed or in-progress botany degree is preferred.
2. Outdoor hiking and camping experience.
3. Moderate or preferably high level of physical fitness.
4. Familiarity with one or more of the KLMN parks.
5. Familiarity with plant communities in the Klamath Region.
6. Leadership experience.
7. Strong organizational skills.
8. Knowledge of, or preferably certification in, wilderness first aid.
9. Ability to work in the field with another crew member for long periods of time.

Once selected, the Crew Lead should review the protocol and discuss any questions with the Project Lead.

### ***Hiring the Field Crew***

Recruitment of the field crew member(s) should begin by January of the year preceding field work. Hiring should be completed by March. As with hiring the Crew Lead, initiating the recruitment process early is critical for ensuring that well qualified candidates can be found, background checks can be completed, and hiring paperwork can be processed. Although the field crew member(s) do not need to have the same level of experience, nor all of the required skills as the Crew Lead, similar qualities should be sought. While the first three of the above qualities should be considered mandatory, the others are desirable but not strictly required.

### **Preparing Data Forms, Databases, and GIS Layers**

The Crew Lead, working with the GIS Specialist and Data Manager, will make certain updated electronic forms, baseline GIS layers, and target locations are loaded into the field computers and GPS units. Project files will be loaded onto a laptop, which will be used while in the field. The Crew Lead will set up and test the Trimble unit, Garmin unit, and laser rangefinder to make sure they are functioning properly prior to going into the field (SOP #4: Setting Up the Electronic Field Equipment). It is the Data Manager's responsibility to populate the project database with new site locations prior to the start of the field season.

### ***GIS Layers and Maps***

The GIS Specialist should obtain the most up-to-date baseline GIS layers (roads, trails, streams, lakes, park boundary, imagery, etc.) from park staff prior to hiring the Crew Lead. It is the Crew Lead's responsibility to work with the GIS Specialist to create shapefiles of the sites that will be surveyed that year. GIS layers should include attributes that allow the user to break the features in the layer into: (1) 3 km long segments, (2) 500 m long subsegments, and (3) the name of each 3 km long segment. It is critical that shapefiles include the same data fields named the same way each year. The fields that should be included are:

- FID                      GIS ID number.
- Shape                  Type of feature, this should be polyline.
- ID                      Unique ID number for the GIS record.
- Name                  Name of the road, trail, campground, or powerline corridor.
- Length                The length of the route in meters.
- 3kSeg\_Name          Unique name given to the segment of the road, trail, campground, or powerline corridor that will be surveyed.
- Type                  Type of segment (road, trail, campground, or powerline corridor)
- StartX                Easting coordinate for the start of the survey area
- StartY                Northing coordinate for the start of the survey area
- EndX                  Easting coordinate for the end of the survey area
- EndY                  Northing coordinate for the end of the survey area
- park\_code            Park where the survey will be completed

The shapefiles should be provided to the Data Manager 2 weeks prior to starting the field work so he/she can prepare the project database. All GIS layers should be in a WGS84 projection.

It is the Crew Lead's responsibility to create field maps for each site and to help crews navigate around the parks. In most instances, the GIS Specialist will already have pre-designed maps that

will need to have the sample units for that year added. These maps are designed using a mapbook utility and can easily be printed out for each crew member.

Detailed GIS instructions for preparing GPS units and GIS data are currently located in the Network's shared drive at:

G:\Monitoring\Invasive\_Species\_Monitoring\ISED\_GIS\Methods

### ***Master and Project Database***

In order to prepare the database to be used in the field, the Crew Lead will need to provide the Data Manager with a GIS layer of all the sites that will be visited that season in the format described above. In addition, the Crew Lead will need to provide a list of all species that will be monitored or recorded under this protocol and contact information for each person working on this project. Once the Data Manager has the list and GIS layers, he/she can prepare the project database that will be used that year (SOP #9: Databases). Each crew will have a laptop with a Microsoft Access project database loaded onto the desktop of the laptop (SOP #4: Setting up the Electronic Field Equipment). Prior to loading the databases onto the laptop computers, the Data Manager should follow the steps described in SOP #9: Databases to: (1) review and create sites, (2) load electronic forms and toolbars onto the Pocket PC, (3) add historic invasive species data to the Pocket PC, and (4) update baseline data used in pick lists.

### ***Data Forms***

Twenty-five percent of the data forms for the season's sampling should be printed or copied using Rite-in-the-Rain paper. Field forms from the previous years' field work, stored in the project folder, should be used before printing new forms. Care should be taken to ensure that field forms from previous seasons represent the current data collection parameters before using them.

### ***Preparing Equipment***

Equipment will need to be checked before visiting the field to provide sufficient time for needed repairs or replacement. Electronic equipment (Trimble units, Garmin units, laptop computers, and rangefinders) will need to have the proper settings checked prior to going into the field (SOP #4: Setting up the Electronic Equipment). All equipment should be provided by the KLMN. The following equipment and data are needed:

- Trimble GeoExplorer XM Pocket PC, including external antenna (or another unit of similar quality)
- Garmin 60CSx or 76CSx GPS unit (or another unit of similar quality)
- Background files (DRG, NAIP, park boundary, streams, infrastructure, etc.) and sample units (roads, trails, powerlines, campgrounds, dunes)
- Laptop computer with the project database, protocol and supporting documentation, GIS data (as a backup), backup folder (for new data), species identification cards, and any other miscellaneous materials that might be needed (SOP #4: Setting up the Electronic Field Equipment)
- Laser rangefinder with foliar filter
- Datasheets
- Waterproof map of the park with search units or line transects

- Radios or walkie talkies for communication among observers and with the parks
- Hardcopy guides needed to identify exotic plants, including photographs of plants and look-alike species
- Pencils, sharpies
- Hand lens
- Compass
- Field notebook to record field observations and press temporary plant specimens
- Plant press
- Backpacks
- Binoculars
- Clipboard
- Chargers/batteries for electronic equipment
- Watch

#### Miscellaneous items

- First aid kit
- Cell phone
- Sun screen
- Insect repellent
- Water
- Standard camping gear (if housing is not available)

### **Park Requirements**

As early as possible after being hired (e.g., March), the Crew Lead should communicate with the Project Lead to determine the contact person for each park. The Crew Lead should contact each park to inform them of the survey schedule and to determine:

1. Whether housing or campground sites are available.
2. Whether keys are needed to access survey sites.
3. Whether permits are needed to conduct research in the parks.
4. Whether there are any safety procedures to follow. In particular, whether areas to be sampled need to be checked by law enforcement for safety concerns. This may hamper sampling at Whiskeytown.
5. To determine if there are any road or trail closures that may limit areas available for sampling.

In addition, the Crew Lead should work with each park to ensure the Network radios have been properly configured to work with the communication system at each park.

### **Prepare for and Schedule Training**

The training sessions should be scheduled and materials should be prepared as detailed in SOP #3: Observer Training.

## Scheduling Field Work

By sampling the Network's low elevation sites first during the season, then the mid elevation sites, and finally the high elevation sites, crews can ensure that sampling coincides with the optimum time for observing invasive plants (Figure 1). It is the Crew Leader's responsibility to develop a tentative schedule for the entire season at the beginning of the season. However, it is subject to change and only the work assigned for a single field trip should be completed before further instruction from the Crew Lead. Late May through mid-June is a time when sampling is optimal in multiple parks. If necessary, monitoring at Redwood that could be done during this time may be postponed until the end of the field season to allow more flexibility in scheduling.

Habitats	...April..... ...May..... ...June.... ...July.....  August  Sept.
< 1000m WHIS	_____
REDW All	_____
LABE All	_____
ORCA All, > 1000 m WHIS	_____
<2000m LAVO, CRLA	_____
>2000m CRLA, LAVO	_____

**Figure 1.** Timing for invasive species sampling in different elevation zones in different parks of the Klamath Network. WHIS = Whiskeytown, REDW = Redwood, LABE = Lava Beds, ORCA = Oregon Caves, LAVO = Lassen Volcanic, and CRLA = Crater Lake.